



## How To... Find Online Math Manipulatives

*Virtual manipulatives can have a big impact on your math curriculum*

**V**irtual manipulatives or online computer manipulatives – no matter what you call them – they are much more than a game when integrated into your math curriculum. There are literally hundreds of them available for classroom use.

### Why use virtual manipulatives?

Manipulatives help students convert abstract ideas into concrete models. Teachers have been incorporating math manipulatives into their classroom instruction for years, but the greatest barriers to their success have been having adequate numbers of manipulatives, the time involved in getting them out and putting them away and the difficulty of sending them home for students to use. The virtual manipulative helps solve many of these barriers and works very well as a home/school connection for math homework.

I don't want to see an end to hands-on manipulatives, but you can enhance their use with the wide range of virtual manipulatives available online.

### Set the ground rules

Students love using manipulatives because they are like playing games. The key to the successful use of math manipulatives is based on setting up rules for use. Beyond the initial instructional period where students

need to be encouraged to explore the tools, each virtual manipulative should have definite problems and activities which children will complete.

Virtual manipulatives don't require a set of rules for how to take them out, share them and store them when math class ends, but they do require some

prior setup for effective use. If the manipulative has a variety of levels and skills that might be addressed by different groups in your class, it helps to provide a shortcut for each math group that goes to the specific manipulative for the skill you want each student (or group) to

complete. It also makes it easy to assess progress if students have a chart or table where they can record the manipulative they've used and their answer or number of responses, etc. As you make decisions about which virtual manipulatives to use, take into account those that allow you to print or even save student work.

### Get parents involved

Make sure parents understand your use of virtual manipulatives so they see it as valuable homework practice instead of just game play. Send a letter home that outlines the importance of manipulatives and identifies some of the virtual

manipulatives they can use with their children at home to reinforce math concepts being taught in your classroom. Ask them to initial the Progress Chart you use for recording student work with virtual manipulatives to include student home use. Students love this extra practice and it helps parents and students value the "game play."

### 100th Day of School

Here are some good ways to incorporate virtual manipulatives into the 100th Day of School, which falls in January for school districts across the country.

- Choose a pattern-block manipulative and challenge your students to create 100 different patterns.
- Try a tessellation puzzle with 100 pieces or try a 10 x 10 block for a 100 square units design.
- Use 100 blocks to build something.
- See if your students can visit 100 different virtual manipulatives and report how they work to the class.

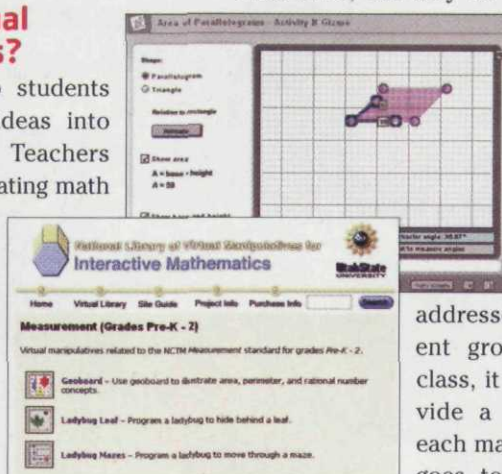
Here are just a few of the portals for finding more than 100 different manipulatives.

### National Library of Virtual Math Manipulatives

<http://matti.usu.edu/nlvm/nav/vlibrary.html>

Wide range of manipulatives for preK-2, 3-5, 6-8 and 9-12 levels. Each java applet includes instructions, a list of activities for the manipulative, a

*Continued on page 26*



**Virtual manipulatives** work well as a home/school connection for math homework.

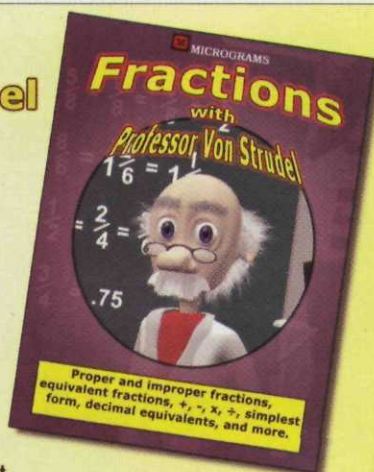


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## TECHNOLOGY IN YOUR CLASSROOM

### How To...

continued from page 24

Teacher/Parent link with detailed information including objectives, lesson plans, extensions, assessment materials and cross references. A Standards button links to NCTM standards for that particular manipulative and the skills it covers at each grade level.

### NCTM: Illuminations

<http://illuminations.nctm.org/tools/index.aspx>

This partnership between NCTM and MarcoPolo provides dozens of virtual math manipulatives with lessons divided by grade level and correlated to NCTM standards. Each searchable lesson has detailed plans – many are enhanced with activity sheets and related web resources.

### Computing Technology for Math Excellence

[http://www.ct4me.net/math\\_manipulatives.htm](http://www.ct4me.net/math_manipulatives.htm)

A comprehensive look at the philosophy of virtual manipulatives and their use in the classroom. The list of annotated web resources where math manipulatives and online tools can be found is quite extensive. This one is a must-have in your bookmarks or favorites!

### ExploreLearning.com

[www.explorelearning.com](http://www.explorelearning.com)

Math and science with Gizmos for grades 6-12. Each Gizmo allows students to manipulate elements related to a specific math concept to explore the world of math and science. Gizmos have complete lessons, assessment and record keeping, with a correlation to state standards and even textbooks. Teacher Only, \$349 a year – try using the Gizmos for whole class demonstrations with a projector; Teacher and Students, \$799 a year; Home, \$149 a year. You can also try a free 30-day trial.

Have fun!

